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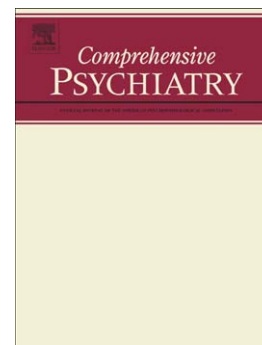
## Accepted Manuscript

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**Dissociation in patients with schizophrenia spectrum disorders: What is the role of different types of childhood adversity?**

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**Abstract**

**Aims:** Our study aimed to explore the effects of different types of adverse childhood experiences (e.g. domestic violence, early loss, parental dysfunction, sexual and physical abuse) as well as experiences of sexual and physical abuse in adulthood on dissociative symptoms in adult patients with schizophrenia-spectrum disorders.

**Methods:** 145 patients were examined for psychotic symptoms with the Positive and Negative Syndrome Scale (PANSS), for dissociative symptoms with the German version of the Dissociative Experiences Scale (DES) and for adverse experiences in childhood and adulthood with the Structured Trauma Interview (STI).

**Results:** Childhood physical abuse was reported by 32%, childhood sexual abuse by 17% of the patients. Other forms of childhood adversity were also quite common; 18% had witnessed domestic violence, 26% reported early loss, and nearly half of patients reported at least one condition potentially related to parental dysfunction. The DES total score was significantly associated with childhood sexual abuse, witnessing of domestic violence and paternal dysfunction, as well as with physical violence in adulthood. In the final regression model, reports of paternal dysfunction and sexual abuse in childhood were independently associated with adult dissociation. Variance in dissociative symptoms was mainly explained by paternal dysfunction (18%).

**Conclusion:** Substantial rates of childhood adversity were found and specific associations were evident with adult dissociation amongst psychosis patients who reported sexual abuse or paternal dysfunction in childhood. Therefore, it is important that patients with schizophrenia-spectrum disorders are routinely asked about a broad range of possible adverse childhood experiences in order to provide appropriate interventions.

**Keywords:**

Childhood adversity, Trauma, Dissociation, Psychosis

## 1. Introduction

There is substantial evidence that childhood adversity is common among patients with psychotic disorders [1, 2]. Most studies so far have focussed on the role of sexual and physical abuse, and to a lesser extent also on childhood emotional abuse [1, 3]. In a recent meta-analysis, the prevalence of self-reported childhood sexual abuse, childhood physical abuse, and childhood emotional abuse among patients with psychotic disorders was 26%, 39%, and 34% respectively [4]. Psychotic patients with a history of childhood trauma have a more severe clinical profile in the sense of poorer social functioning [5], decreased cognitive functioning [6, 7], and lower quality of life [8] compared to patients without these experiences. Moreover, childhood trauma has specifically been linked to hallucinations and delusions [9, 10] and to a broad spectrum of additional problems in patients with psychosis, including substance abuse [11], higher levels of current depression, and anxiety [12, 13].

Another domain that has been related to childhood trauma in patients with psychotic disorders is dissociative symptoms [14, 15]. Bleuler's concept of 'splitting of the psyche' in patients with schizophrenia [16] has led to an continuing interest [17-19], which nevertheless is on a relatively low level, for this rather neglected form of psychopathology. However dissociative symptoms may even be related to core processes of dysfunction in schizophrenia as there is first evidence that poorer recognition of negative emotions is best predicted by dissociative symptoms [20].

While most studies on associations between childhood trauma and dissociative symptoms in patients with psychotic disorders support the hypothesis that there is a relationship between dissociative symptoms and childhood trauma, they face a number of challenges. For instance, in patients with psychosis, dissociative symptoms seem to be influenced by the phase of the illness [21, 22] and their interrelationship with positive psychotic symptoms remains poorly understood [23]. Moreover, inconsistent findings have been reported regarding the type of childhood trauma most strongly related to dissociative symptoms. While some authors reported that childhood sexual abuse was most strongly related to dissociation [21], others highlighted the role of childhood physical abuse, emotional abuse, or neglect [14, 15, 24]. It has also been suggested that several distinct groups of psychotic patients might exist which could be differentiated by the effects of different types of childhood trauma [14].

Research in other populations suggests that in addition to childhood abuse and neglect other types of childhood adversity also have an impact on psychopathology. For instance, witnessing domestic violence in childhood has been related to depression, anxiety, anger and hostility in adult life [25, 26], especially when combined with verbal abuse [27]. In one of the few

studies that investigated a broader range of childhood adversity in patients with schizophrenia spectrum disorders parental divorce, domestic violence, and foster or kinship care was associated with various additional psychiatric problems, worse physical health and poor social functioning [11]. Only a few studies so far have examined the influence of a broader spectrum of self-reported childhood adversity on dissociative symptoms in patients with psychosis. In a non-clinical population a strong adverse effect on dissociation was found for combined witnessing of domestic violence and verbal abuse, comparable to the effect of exposure to familial sexual abuse [27]. Semiz et al. [28] reported that early separation, in addition to physical abuse, was a significant predictor for the severity of dissociative symptoms in male patients with antisocial personality disorder. In a study by Van Den Bosch [29], maternal dysfunction (e.g. recurrent illness, nervousness, depression or alcohol misuse), in addition to sexual and physical abuse, was a significant predictor for the severity of dissociative symptoms in female patients with borderline personality disorder. Maternal dysfunction was also found to be associated with dissociation in a general psychiatric in-patient sample, in which one third of the patients suffered from psychotic symptoms [30].

To our knowledge, no studies on the influence of a broader spectrum of childhood adversities on dissociation in patients with schizophrenia-spectrum disorders have been conducted so far. Therefore, the aim of our study was to explore the effects of other types of self-reported childhood adverse experiences (domestic violence, early loss, and parental dysfunction), in addition to sexual and physical abuse, on dissociative symptoms in this group of patients. We decided to assess the psychotic symptoms when patients were considered by the therapeutic team to be in a sufficiently stable state as the phase of psychotic illness has been shown to be of importance for the relationship between self-reported childhood trauma and dissociation [21]. In addition we took experiences of sexual and physical abuse in adulthood into account to control for potential influences of adult trauma on dissociative symptoms [31-33]. Our hypothesis was that other types of childhood adversity, in addition to childhood sexual and physical abuse, would also be related to dissociative experiences in adult patients with schizophrenia-spectrum disorders.

## 2. Methods and Participants

### 2.1 Participants

The participating patients were treated on a specialized ward for psychotic disorders at the University Medical Center Hamburg-Eppendorf, Germany. Inclusion criteria were diagnosis of a schizophrenia-spectrum disorder (International Classification of Diseases, 10<sup>th</sup> Revision [ICD-10], codes F20-F29) [34], aged between 18 and 65 years, and sufficient German language abilities. Exclusion criteria were a very brief admission ( $\leq 3$  days) and clinical states leading to potential risks in the case of participation (e.g. persisting acute suicidality). All subjects provided written informed consent. The study was approved by the responsible ethics committee (State Chamber of Physicians, Hamburg, Germany) and was performed according to the Declaration of Helsinki. Of the 283 consecutive patients who met the inclusion criteria, 178 (63%) agreed to participate in the study. Twenty of these could not be examined because they either left the ward too soon after the minimum length of stay defined in the study protocol or they did not show up to the interviews despite continuing efforts to make this possible. During the assessment of childhood trauma, 2 patients decided not to complete the interview because they were too distressed. In the case of another 2 patients the interviewer made this decision. The data of another 9 patients were later excluded from the analysis because of inconsistent information given in the interview. The remaining 145 (51%) patients constituted the study sample.

### 2.2 Procedures and assessments

Psychological symptoms were assessed before asking patients about their childhood histories as well as their experiences with sexual and / or physical abuse in adulthood.

*Diagnoses* were confirmed using the Mini International Neuropsychiatric Interview [35] and the psychosis section of the Structured Clinical Interview for Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition [36].

*Psychotic symptoms* were measured using the Positive and Negative Syndrome Scale (PANSS; [37]). This was carried out together with the assessment of dissociative symptoms and childhood adversities when patients were considered by the therapeutic team to be in a sufficiently stable state ( $M=20.9$  days after admission,  $SD=13.2$ ). First, the PANSS was administered by trained raters blind to the patients' history of childhood adversity. The scale comprises 30 items rated on a 7-point Likert scale, with a total score ranging from a minimum of 30 to a maximum of 210. We computed the PANSS total score and the three subscale scores of the PANSS: positive symptoms (PANSS POS), negative symptoms (PANSS NEG) and general

psychopathology (PANSS GEN). Good to excellent reliabilities were found on all scale scores and for most items [38].

*Dissociative symptoms* were assessed using the German version of the Dissociative Experiences Scale (DES; [39]). This reliable and internally consistent self-report questionnaire is the most widely used instrument for dissociative symptoms in clinical samples. It contains items referring to amnesia, depersonalization, derealization, absorption and identity alteration and comprises three subscales (absorption, depersonalization and amnesia). The German version of the DES yields good to excellent statistical parameters similar to the original version [40]. The DES total score demonstrated high internal consistency in the current sample (Cronbach's  $\alpha=0.93$ ). Good internal consistency was also found for DES subscales (amnesia:  $\alpha=0.83$ , absorption:  $\alpha=0.87$ , depersonalization:  $\alpha=0.77$ ).

*Reports of adverse childhood experiences* were assessed with the Structured Trauma Interview (STI; [41]). The STI covers the following types of adverse childhood experiences that occurred before the age of 16 years: 1) childhood physical abuse, i.e. severe aggression by parents or parental figures (such as step or adoptive parents, or other primary caretakers), including repeated forms of physical violence frequently inflicting injuries; 2) childhood sexual abuse including any reported pressured or forced sexual contact ('hands-on'); 3) child witness of domestic violence, including experiences of witnessing physical/sexual violence between parental figures; 4) early loss, including loss of a natural parent or caretaker by death, divorce, or a variety of other possible reasons for a period of at least 6 months and experienced before age 12; and 5) parental dysfunction, including dysfunction of parental figures resulting from recurrent physical illness, nervousness, depression or abuse of alcohol, or sedatives. Based on these five items a sum score was calculated for each parent (paternal dysfunction; maternal dysfunction), as an indicator for the potential degree of dysfunction [30].

*Adverse experiences in adulthood* were also assessed to control for their potential influence on dissociative symptoms. Given their possible impact on dissociative reactions [31] we included in the analysis the STI items assessing physical abuse and sexual abuse after the age of 16.

## 2.3 Statistical analysis

Differences regarding the DES total score and the DES subscales between patients reporting and not reporting adverse experiences in childhood or adulthood were examined with independent t-tests. Results of evaluation of assumptions led to transformation of the DES total score to reduce skewness and the number of outliers, and to improve normality, linearity and homoscedasticity of residuals. The connection between dissociation and parental dysfunction



was analyzed via Pearson's correlations between the DES total and subscale scores and the parental dysfunction scales. Also the associations between paternal dysfunction and other adverse experiences assessed by the STI were analyzed via Pearson's correlations. The tests of significance were 2-tailed. The univariate analyses were considered exploratory and are reported without correction for multiple testing.

To determine the independent association of the different types of reported adverse experiences and psychotic symptoms with the DES total score, a linear regression analysis was performed. The PANSS positive score, age, gender and all types of adverse experiences that showed significant associations with the DES total score were entered in a backward procedure. The final model was examined for interaction effects and the effects of outliers and influential observations.

One-way between groups analyses of variance were conducted to explore the impact of type of diagnosis and age on levels of DES total score. Subjects were divided into three groups according to their type of diagnosis (e.g. schizophrenia, schizoaffective disorder and other schizophrenia-spectrum disorders) and into three groups according to their age (18-25 years, 26-35 years and over 35 years).

Effect sizes were defined as small ( $r < 0.3$ ), medium ( $r = 0.3 - 0.5$ ), and large ( $r \geq 0.5$ ) according to Cohen [42].  $P$ -values  $< .05$  were considered significant. As parametric statistical methods, like  $t$ -test and analysis of variance as well as Pearson's correlation, have been repeatedly shown to be rather robust regarding non-normality of the distribution [43] we used parametric statistical methods following the tradition of psychometric analyses to ascertain direct comparability with most other studies.

The statistical evaluation was performed using PASW Statistics 18.0 (Chicago, Illinois, USA).

### 3. Results

#### 3.1 Sample description

The final sample included  $n=145$  patients (67% male) with a mean age of 34 years ( $SD=11.5$ ). Most patients ( $n=104$ ; 72%) had a diagnosis of schizophrenia, 32 (22%) had schizoaffective disorder, and 9 (6%) had other schizophrenia-spectrum disorders (e.g. schizophreniform disorder or delusional disorder). The mean duration of illness was 7.8 years ( $SD=9.7$ ). In 31% of the patients, the onset of illness was within the year before admission, in 25% the duration of illness was more than one but not more than 5 years, and in 44% the duration of the illness was more than 5 years.

#### 3.2 Adverse Experiences

The patients reported substantial rates of childhood adverse events. Childhood physical abuse was reported by 46 (32%) of the patients. Of these, one third ( $n=17$ ; 37%) reported physical injuries as a result of the maltreatment. Childhood sexual abuse was reported by 25 patients (17%). A third of the sexually abused patients reported different forms of penetration ( $n=9$ ; 36%). Of the 23 patients reporting details on the perpetrators, 6 (26%) reported intra-familial, 14 (61%) reported extra-familial, and three (13%) reported both forms of sexual abuse. Twenty-six patients (18%) reported that they had witnessed domestic violence. Early loss was reported by 38 patients (26%). Nearly half of the patients ( $n=68$ ; 47%) confirmed at least one condition potentially related to parental dysfunction (recurrent physical illness, psychological symptoms or abuse of alcohol, sedatives, or drugs). Thirty-nine (27%) experienced only one form of parental dysfunction, 13 (9%) two, 9 (6%) three, 6 (4%) four, and one (1%) all five conditions. Experiences of physical or sexual violence in adulthood were reported by 56 (38%) and 24 (17%) of the patients, respectively.

#### 3.3 Relationships between psychotic and dissociative symptoms

The mean PANSS total score was 66.1 ( $SD=14.3$ ; PANSS POS:  $M=14.3$ ,  $SD=4.3$ ; PANSS NEG:  $M=17.5$ ,  $SD=5.1$ ; PANSS GEN:  $M=34.3$ ,  $SD=7.8$ ). The mean DES total score was 14.1 ( $SD=12.0$ ; Amnesia:  $M=8.9$ ,  $SD=11.0$ ; Depersonalization:  $M=13.3$ ,  $SD=14.6$ ; Absorption:  $M=19.2$ ,  $SD=14.2$ ). The DES total score was significantly correlated with the Positive Subscale of the PANSS ( $r=.216$ ,  $p=.039$ ) while no other significant correlation between the PANSS subscales or total score and the DES scores were apparent.

### 3.4 Associations between reported adverse experiences and dissociative symptoms

To assess associations between dissociative symptoms and the different types of reported childhood adversities, the DES scores (subscales and total score) were compared between patients with and without reports of the different adverse experiences using t-tests (see Table 1). Significant differences in DES total score between those with and without the reported adversity could be observed for reports of childhood sexual abuse ( $p=.026$ ), witnessing domestic violence in childhood ( $p=.006$ ), and physical violence in adulthood ( $p=.022$ ).

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Please insert Table 1 about here

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Relationships between the scores of the two parental dysfunction scales (maternal dysfunction and paternal dysfunction) and DES scores were assessed using Pearson's correlations. The paternal dysfunction sum score was significantly correlated with the DES total score ( $r=.228$ ;  $p=.035$ ) and all subscales (amnesia:  $r=.357$ ,  $p=.001$ ; depersonalization:  $r=.212$ ,  $p=.011$ ; absorption:  $r=.272$ ,  $p=.011$ ). No significant correlations were found between the maternal dysfunction sum score and the DES total score as well as the DES subscales.

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### 3.5 Prediction of dissociative symptoms

To assess the independent association of the different types of reported adverse experiences and psychotic symptoms with the DES total score, a linear regression analysis was performed. All types of adverse experiences that showed significant associations with the DES total score were entered in a backward procedure. Therefore the variables of the basic model were paternal dysfunction, childhood sexual abuse, witnessing domestic violence in childhood, and physical violence in adulthood in addition to the PANSS positive score, age, gender. For the final linear regression model for the DES total score see Table 3.

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The final regression model explained 23% of the DES total score ( $F(1,46)=4.785$ ;  $p=.005$ ). Only three of the independent variables made a unique and statistically significant contribution to the model. In the final model reported paternal dysfunction was the strongest predictor of dissociation level explaining 18% of the variance ( $p=.001$ ), followed by reported childhood sexual abuse, explaining 8% of the variance ( $p=.034$ ), and the PANSS positive score, explaining 7% of the variance ( $p=.041$ ). No significant influence of age or gender could be observed.

### **Associations between parental dysfunction and other adverse childhood experiences**

In an exploratory approach we examined the associations between paternal dysfunction and other adverse experiences assessed by the STI, as paternal dysfunction might be accompanied by other childhood adversities.

In the t-tests significant differences in paternal dysfunction score could only be observed for reports of witnessing domestic violence in childhood ( $p=.015$ ); see table 4.

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The paternal dysfunction sum score was significantly correlated with the severity of paternal physical abuse score ( $p=.017$ ), the chronicity of parental physical abuse score ( $p=.036$ ) and the chronicity of sexual abuse score ( $p=.044$ ), see table 5.

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### **Differences between dissociative symptoms according to diagnoses and age groups**

There was no statistically significant difference at the  $p<.05$  level in DES total scores for the three diagnostic groups ( $F(2,118)=432$ ,  $p=.650$  and also not for the three age groups ( $F(2,118)=033$ ,  $p=.968$ ).

#### 4. Discussion

To our knowledge, this is the first study to explore the relationship between a range of negative childhood experiences and dissociation in patients with schizophrenia-spectrum disorders. In contrast to other studies, we included not only childhood sexual and physical abuse, but also early loss or separation from caretakers, parental dysfunction and witnessing domestic violence during childhood, as well as reports of physical or sexual violence in adulthood. Moreover, we based this analysis on the data obtained by a structured interview (Structured Trauma Interview). Asking for specific events instead of relying on self-report questionnaires could yield more reliable results as the patient's narratives allow researchers to rate traumatic experiences more objectively and independently from the patient's current emotional state [44].

A large proportion of patients had experienced childhood adversity, with parental dysfunction (47%) and childhood physical abuse (32%) being the most commonly reported. Significant associations were observed between the DES total score and childhood sexual abuse, being a witness of domestic violence and paternal dysfunction, as well as physical violence in adulthood. Early loss was the only childhood event not associated with the total score of the DES or any of its subscales. Regression analysis revealed that paternal dysfunction and childhood sexual abuse independently predicted dissociation. Paternal dysfunction explained 18% of the variance in dissociative symptoms, while 8% were explained by childhood sexual abuse. A similar effect was observed for the PANSS positive score, which explained 7% of the variance.

Of note is the explicit role of paternal dysfunction. This is in contrast to earlier findings, where a significant role of maternal neglect in dissociation has been found [29, 30]. These inconsistencies might be explained by the different gender distribution, as our sample was predominantly male, possibly leading to a greater influence of male role models, while the cited studies examined predominantly female samples.

Our findings suggest that a more general cluster of parental dysfunction might best explain the amount of dissociative symptoms in patients with schizophrenia-spectrum disorders. Similar associations between dissociation and parental dysfunction have been reported for other psychiatric samples [29, 30]. It has been suggested that parental dysfunction as measured by the STI could be a proxy of childhood neglect [30], which would be in line with previous research on relationships between neglect and dissociation in patients with schizophrenia-spectrum disorders [14, 15]. Other studies stressed relationships between emotional abuse and dissociation in this group of patients [14, 15, 21, 24]. Our findings seem to suggest that paternal

dysfunction, as measured by the STI, might be risk factor for a broader spectrum of childhood adversity, including emotional and physical trauma, domestic violence, and maybe even sexual abuse. In an exploratory approach we examined the associations between paternal dysfunction and childhood physical or sexual abuse and witnessing domestic violence. The results support our hypothesis as there were significant relationships between parental dysfunction and severity of paternal physical abuse, chronicity of parental physical abuse and chronicity of sexual abuse and significant differences of parental dysfunction between those with and without reports of witnessing domestic violence.

Given the potential dose-response-relationships between the number of different adverse conditions and psychopathology [45], this could explain the strong influence of paternal dysfunction in our study. For example, exposure to additional traumatic events in individuals with a history of domestic violence was significantly related to the overall number of trauma symptoms [46], and a recent study in patients with first-episode psychosis showed a dose-response-relationship between the number of different adverse experiences and the risk for psychosis [47].

Another potential explanation is that parental dysfunction may hinder parents from adequately perform their parental duties and therefore increase the opportunity for the unprotected child to be traumatized outside of the family. At the same time an environment with at least one dysfunctional parent might increase the risk to develop psychopathology when exposed to sexual abuse and other forms of childhood adversity, because of a lack of support and resources inside of the family or due to shared genetic vulnerability. In future studies, a chronology of different forms of childhood adversities should be documented, ideally in genetically-sensitive designs, to examine the relative role of these factors.

How trauma and parental incompetence may lead to dissociation is not yet clear. One possible explanation might be that dimensions such as metacognition and mentalization are disrupted by or have not been fully developed in an environment with interpersonal trauma and attachment problems and may lead to a reduction of the potential to metacognitively integrate information into more complex whole, setting the stage for dissociation [48].

Limitations of our study include the use of retrospective self-reports, which might be subject to recall bias. It has been reported, however, that memories of childhood adversity can be reliably assessed in patients with psychotic disorders [49]. Moreover, because of the cross-sectional nature of our study, no firm conclusions can be made about causal relationships between the measured adversities and dissociation. Another limitation could be that patients not consenting to the study might have differ from our final sample in regard to clinical variables as for example age, gender or duration of illness, we therefore can not exclude selection effects.

Schizophrenia-spectrum diagnoses were not evenly distributed, but the vast majority was diagnosed with schizophrenia. This might result in too small groups of schizoaffective or other schizophrenia-spectrum disorders to detect differences of the dissociative symptoms between diagnoses. Finally, all patients were recruited on an open ward for patients with psychotic disorders and many suffered from only moderately severe psychotic syndromes. The inclusion of more severely ill patients might have led to different findings.

#### **4.1 Conclusion**

In this study we found high rates of adverse childhood experiences in patients with schizophrenia-spectrum disorders. In addition to childhood sexual abuse, paternal dysfunction was strongly related to the reported levels of adult dissociation, suggesting that a broader spectrum of early adversity might play a role in the development of dissociative symptoms. This underlines the need to assess different forms of childhood adversity when trying to understand the aetiology of dissociative symptoms. It also emphasizes the importance of assessing past history of childhood adversity and dissociative symptoms in psychosis patients in order to ensure the most appropriate and effective interventions are provided to this patient group. Future studies are needed to elucidate the interplay between trauma-types and the chronology of adverse experiences, to understand their differential contribution and potential interactions.

**Authors' contributions:** IS designed the study, KS had access to the raw data and analyzed the data, IS and KS interpreted the data, KS wrote the initial draft of the paper. IS, WL, HLF and CGH revised the initial draft. All authors have contributed to, read and approved the final version of the manuscript.

**Conflicts of interest:** The authors declare that there are no conflicts of interest in relation to the subject of this study.

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**Table 1.** Differences in dissociation scores between those with and without each type of reported adversity

	Childhood physical abuse (N=145)	Childhood sexual abuse (N=141)	Witnessing domestic violence (N=115)	Early loss (N=115)	Adult physical abuse (N=137)	Adult sexual abuse (N=131)
DES Amnesia	$t(57.05) =$ 1.997; $p = .052$	$t(18.19) =$ 2.225; $p = .040$	$t(25.82) =$ 2.296; $p = .030$	$t(43.72) =$ 1.566; $p = .122$	$t(87.23) =$ 2.018; $p = .048$	$t(109) =$ 1.330; $p = .186$
DES Depersonalization	$t(65.98) =$ 1.190; $p = .238$	$t(19.68) =$ 1.139; $p = .268$	$t(97) =$ 1.805; $p = .074$	$t(97) =$ 0.846; $p = .400$	$t(113) =$ 1.836; $p = .070$	$t(109) =$ 1.151; $p = .252$
DES Absorption	$t(117) =$ 1.357; $p = .118$	$t(19.96) =$ 1.579; $p = .130$	$t(97) =$ 2.391; $p = .020$	$t(48.84) =$ 0.846; $p = .402$	$t(113) =$ 2.293; $p = .024$	$t(109) =$ 0.769; $p = .444$
DES total score	$t(117) =$ 1.309; $p = .194$	$t(116) =$ 2.249; $p = .026$	$t(97) =$ 2.830; $p = .006$	$t(97) =$ 1.028; $p = .308$	$t(113) =$ 2.346; $p = .022$	$t(109) =$ 1.082; $p = .282$

Notes. DES, Dissociative Experiences Scale.

**Table 2.** Correlations between reported maternal and paternal dysfunction (resulting from recurrent physical illness, nervousness, depression, abuse of alcohol or sedatives) and dissociation

	Maternal dysfunction (N=87)	Paternal dysfunction (N=86)
DES Absorption	$r = -.031$ $p = .774$	$r = .272$ $p = .011$
DES Depersonalization	$r = .089$ $p = .411$	$r = .212$ $p = .011$
DES Amnesia	$r = .103$ $p = .341$	$r = .357$ $p = .001$
DES total score	$r = -.009$ $p = .923$	$r = .228$ $p = .035$

Notes. DES, Dissociative Experiences Scale.

**Table 3.** Final linear regression model for DES total score.

DES total score ( $R^2 = .230$ )	$\beta$	SE	Stand. $\beta$	t	95% CI	p-value
Constant	1.988	0.706		2.814	0.567 – 3.408	.007
PANSS POS	.095	0.045	0.281	2.100	0.004 – 0.187	.041
Child sexual abuse	-0.030	0.014	-0.296	-2.186	-0.057 – -0.002	.034
Paternal dysfunction	0.498	0.161	0.448	3.371	0.201 – 0.795	.001

*Notes.* DES, Dissociative Experiences Scale; PANSS POS, positive symptom score from the Positive and Negative Syndrome Scale; SE: standard error; Stand.  $\beta$ : standardized Beta; CI: confidence interval.

**Table 4.** Differences in reported paternal dysfunction scores between those with and without each type of reported childhood adversity

	Childhood physical abuse (N=103)	Childhood sexual abuse (N=101)	Witnessing domestic violence (N=80)	Early loss (N=80)
Paternal dysfunction	$t(101) = 1.885$ ; $p = .062$	$t(99) = 1.356$ ; $p = .178$	$t(22.14) = 2.628$ ; $p = .015$	$t(24.23) = 1.380$ ; $p = .180$

**Table 5.** Correlations between reported parental dysfunction and reported severity and chronicity of physical and sexual abuse

	Severity of paternal physical abuse (N=103)	Chronicity of parental physical abuse (N=103)	Severity of sexual abuse (N=98)	Chronicity of sexual abuse (N=98)
Paternal dysfunction	$r = .234$ $p = .017$	$r = .206$ $p = .036$	$r = .121$ $p = .234$	$r = .204$ $p = .044$